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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/831,929	06/29/2001	Ki-Seung Choi	EF321688773U	9906

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EXAMINER

CHANNAVAJALA, LAKSHMI SARADA

ART UNIT PAPER NUMBER

1615

DATE MAILED: 05/21/2002

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/831,929

Applicant(s)

CHOI ET AL.

Examiner

Lakshmi S. Channavajjala

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>5</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Receipt of Declaration, dated 6-29-01 and Information Disclosure Statement, dated 8-17-01 is acknowledged.

Specification

This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

Minor Informalities

It is noted that the terms "general formula" in claim 1 are enclosed in parenthesis. Since the material in parenthesis is considered deleted subject matter. Examiner also notes that some of the subject matter is enclosed in parenthesis throughout the specification. It is suggested that the parentheses are deleted from specification as well as claims.

Claim 5 is directed to a method and recites, "by putting a biocide composition". It is suggested that the word "applying" is more appropriate in describing the method than "putting".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of US 5,278,178 to Hsu and SU 1687261 A1 (hereafter SU '261).

Instant claims are directed to a biocide composition comprising 3-isothiazolone and polyhexamethylene guanidine phosphate and a method of killing or restraining the growth of bacteria.

Hsu teaches synergistic microbicidal and biocidal combination compositions comprising 3-isothiazolone mixtures made up of 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one and one or more of other antimicrobial compounds. Hsu teaches that the compositions are useful as commercial biocides for effective and broader control of microorganisms (abstract, col. 2, lines 3-54). Instant specification describes the same compounds taught by Hsu as more preferable isothiazolone compounds (page 6, lines 1-2). Hsu teaches the ratios of isothiazolones as 3:1 (col. 2, lines 56-60), which is within the claimed ratio of 1:20 to 20:1. The other antimicrobial compounds of Hsu are listed in col. 3, lines 1-10. Hsu also teaches additives such as solvents, dispersion agents, surfactants (col.3, lines 30-32), which read on the instant additives for emulsion products (instant claim 4).

Hsu does not teach the instant combination of isothiazolone and polyhexamethylene guanidine phosphate. However, Hsu suggests that a combination of two isothiazolones and other

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antimicrobial compounds results in a synergy, which affords a more effective and broader control of microorganisms (col. 2, lines 6-15).

SU '261 teaches polyhexamethylene guanidine gluconate as an active component in disinfecting compositions, useful for improving the disinfecting properties of the composition (abstract). SU '261 does not teach isothiazolone compounds of the instant invention. However, it would have been obvious for one of an ordinary skill in the art at the time of the instant invention to combine polyhexamethylene guanidine gluconate of SU '261 with the isothiazolone compounds of Hsu because both the references teach compositions containing antimicrobial compounds for disinfecting or preventing microbial contamination. Therefore, one of an ordinary skill in the art would have expected to achieve a synergistic effect in controlling or preventing microbial growth by combining the two disinfectants.

SU '261 does not teach polyhexamethylene guanidine phosphate and instead teaches gluconate salt of the compound. However, absent any criticality, one of an ordinary skill in the art at the time of the instant invention would have expected the same antimicrobial effect with any salt of polyhexamethylene guanidine i.e., a hydrochloride or gluconate or phosphate salt. With respect to the claimed ratio of isothiazolone and polyhexamethylene guanidine salt, it would have been obvious for one of an ordinary skill in the art to optimize the ratios of different antimicrobial agents in composition containing combination of antimicrobials, such that maximum antimicrobial effect is achieved.

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2. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of US 5,278,178 to Hsu and SU 1687261 A1 (hereafter SU '261), and further in view of JP 10175809(hereafter JP '809, submitted on PTO-1449).

The teachings of Hsu and SU '261 have been discussed above. Neither teaches a combination of isothiazolone and polyhexamethylene guanidine phosphate. However, Hsu suggests that a combination of isothiazolones and other antimicrobials result in a synergistic effect and provide broader control over microorganisms.

JP '809 teaches industrial antimicrobial compositions comprising isothiazolones and polyhexamethylene guanidine hydrochloride and suggests that the synergistic composition is effective against bacteria, fungi, yeast, algae and actinomycetes.

Therefore, it would have been obvious for one of an ordinary skill in the art at the time of the instant invention to combine isothiazolones of Hsu and polyhexamethylene guanidine gluconate of SU '261, with an expectation to achieve a synergistic effect in preventing and controlling microbial growth. Further, optimizing the amounts of individual antimicrobial agents in a composition so as to achieve a maximum antimicrobial effect would have been obvious for one of an ordinary skill in the art.

Although JP '809 teaches hydrochloride salt of polyhexamethylene biguanidine and not a phosphate salt, as explained above, absent any criticality, one of an ordinary skill in the art at the time of the instant invention would have expected the same antimicrobial effect with any salt of polyhexamethylene guanidine i.e., a hydrochloride or gluconate or phosphate salt.

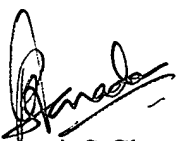
No claim is allowed.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lakshmi S. Channavajjala whose telephone number is 703-308-2438. The examiner can normally be reached on 7.30 AM -4.00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman K Page can be reached on 703-308-2927. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7924 for regular communications and 703-308-7924 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1235.



Lakshmi S Channavajjala
Examiner
Art Unit 1615
May 20, 2002